QLogic 10Gb CNA for IBM System x and IBM Power Systems

IBM System x at-a-glance guide

The QLogic 10Gb CNA is a PCI Express 2.0 x4 10Gb Converged Network Adapter and is available for both IBM System x and IBM Power Systems servers. For IBM Power Systems, the adapter is known as the 10 Gb FCoE PCIe Dual Port Adapter (Feature 5708). The adapter connects to either SFP+ Multimode Fiber SR optical modules or SFP+ Active Copper cables.

This adapter supports 10 Gbps per port maximum bidirectional throughput for high-bandwidth storage (SAN) and networking (LAN) traffic, with full hardware offload for Fibre Channel over Ethernet (FCoE) protocol processing. The PCI Express low profile form factor adapter can be used in either a standard PCI-E slot or a low profile PCI-E slot.

The QLogic 10Gb CNA is shown in Figure 1.

Figure 1. QLogic 10Gb CNA

Did You Know?

Convergence of SAN and LAN traffic on a single adapter and wire helps lower the total cost of ownership by reducing the reduced hardware, power, cooling, management, and maintenance costs. It offers investment protection by providing seamless compatibility with existing Fibre Channel (FC) Storage, ethernet networks, driver software, and management applications.

Part number information

Table 1. Ordering part number and feature code

Description	Part number	Feature code
QLogic 10Gb CNA for IBM System x	42C1800	5751
QLogic 10Gb CNA for IBM Power Systems (Feature 5708, 10 Gb FCoE PCIe Dual Port Adapter)	Not applicable	5708
QLogic 10Gb SFP+ SR Optical Transceiver*	49Y4218	0064

* This transceiver is standard with the Power Systems feature 5708

Part number 42C1800 includes the following items:

- One QLogic 10Gb CNA for IBM System x
- 2U bracket
- Support CD
- Safety flyer

Transceiver part number 49Y4218 includes the following items:

- One QLogic 10Gb SFP+ SR Optical Transceiver
- Support CD
- Safety flyer

Note: The transceiver is not included with part number 42C1800 or System x feature 5751, however it is included with Power Systems feature 5708.

Features

The QLogic 10Gb CNA has the following features:

- PCI Express 2.0 compliance
- Operates at PCI Express 2.0 x4 or PCI Express 1.1 x8
- Two SFP+ cages for either SFP+ Fiber SR or SFP+ Active Copper
- Standard PCI Express half length card with low profile form factor
- Support for both standard PCI-E slot and low profile PCI-E slot
- Support for 10Gb Converged Enhanced Ethernet (CEE)
- Support for Fibre Channel over Converged Enhanced Ethernet (FCoCEE)
- Full hardware offload for FC protocol processing
- Support for IPv4 and IPv6
- Support for SAN boot over CEE, PXE boot, and iSCSI boot

The QLogic 10Gb SFP+ SR Optical Transceiver has the following features:

- Laser Class 1 compliance
- Support for the SFP+ cages on the 42C1800 adapter
- Standard SFP+ form factor for multimode Fiber SR

Ethernet specifications

The QLogic 10Gb CNA has the following Ethernet specifications:

- Throughput: 10 Gbps full duplex line rate per port
- Topology: Any 10Gb Ethernet Network
- Ethernet Frame: 1500 byte or 9000 byte (Jumbo Frame)
- Stateless offload features:

  - IP, TCP, and UDP checksum offloads
  - Large and Giant Send Offload (LSO, GSO)
  - Receive Side Scaling (RSS)
  - Header-data split
  - Interrupt coalescing
  - NetQueue

- Enhanced Ethernet features:

  - Priority-based flow control (802.1Qbb rev. 0)
  - Enhanced transmission selection (802.1Qaz rev. 0)
  - DCBX protocol (802.1Qaz rev. 0)

- Compliance

  - IEEE: 802.3ae (10Gb Ethernet)
  - 802.1q (VLAN)
  - 802.3ad (Link Aggregation)
  - 802.1p (Priority Encoding)
  - 802.3x (Flow Control)
  - 802.3ap (KX/KX4)
  - 802.3ak (CX4)
  - IEEE 1149.1 (JTAG)
  - IPv4 Specification (RFC 791)
  - IPv6 Specification (RFC 2460)
  - TCP/UDP Specification (RFC 793/768)
  - ARP Specification (RFC 826)

FCoE specifications

The QLogic 10Gb CNA has the following FCoE specifications:

- Performance: 250,000 IOPS per port
- Logins: Support for 2048 concurrent logins and 2048 active exchanges
- Class of service: Class 3
- Protocols: FCP (SCSI-FCP), FC-TAPE (FCP-2)
- Compliance:

  - SCSI-3 Fibre Channel Protocol (SCSI-FCP)
  - Fibre Channel Tape (FC-TAPE) profile
  - SCSI Fibre Channel Protocol-2 (FCP-2)
  - Second Generation FC Generic Services (FC-GS-2)
  - Third Generation FC Generic Services (FC-GS-3)

Operating environment

The adapter is supported in this environment:

- Temperature:
  - Operating: 0° to 55°C (32° to 113°F) at 0 to 914 m (0 to 3000 ft)
  - Storage: -43° to 73°C (-40° to 163°F) at 0 to 914 m (0 to 3000 ft)
- Relative humidity: 5% to 93% (non-condensing)

Supported servers

The QLogic 10Gb CNA for IBM System x is supported in the IBM System x servers listed in Table 2.

Table 2. Supported servers

Adapter	x3200 M2	x3250 M2	x3350	x3400	x3400 M2	x3450	x3455	x3500	x3500 M2	x3550	x3550 M2	x3650	x3650 T	x3650 M2	x3655	x3755	x3850 M2	x3950 M2
QLogic 10Gb CNA for IBM System x	Y	Y	Y	Y	N	N	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y

See IBM ServerProven for the latest information on the System x servers that support this adapter:
http://ibm.com/servers/eserver/serverproven/compat/us/

The QLogic CNA is supported in the IBM Power Systems servers listed in Table 2.

Table 2. Supported servers

Adapter	Power 520	Power 550	Power 560	Power 570	Power 575	Power 595
QLogic 10Gb CNA for IBM Power Systems (Feature 5708, 10 Gb FCoE PCIe Dual Port Adapter)	Y	Y	Y	Y	Y	Y

Popular configurations

This section illustrates how the QLogic 10Gb CNA for IBM System x can be used in configurations.

Figure 2 shows QLogic 10Gb CNA installed in a supported x3650 M2 server. The server is connected to the IBM System Storage DS4700 via two IBM Converged Switch B32 switches.
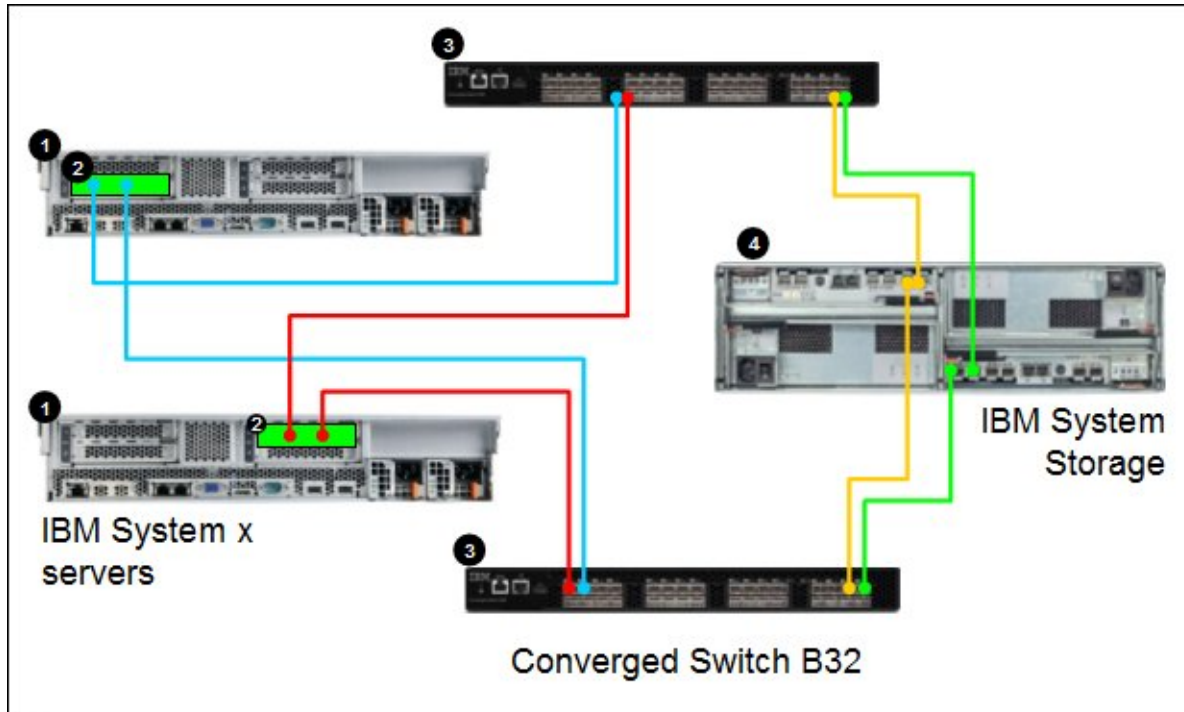

Figure 2. x3650 M2 server with the QLogic 10Gb CNA connected the IBM System Storage DS4700

The parts used are listed in Table 3.

Table 3. Components used when connecting QLogic 10Gb CNA to external disk storage (Figure 2)

Diagram reference	Part number/machine type	Description	Quantity
1	Varies	x3650 M2 or other supported server (See Table 2)	2
2	42C1800	QLogic 10Gb CNA for IBM System x	2
2	49Y4218	QLogic 10Gb SFP+ SR Optical Transceiver	4
3	3758-B32	IBM Converged Switch B32	2
4	1814-70A or 1814-70H	IBM System Storage DS4700 (Model 70 or Model 72)	1

This configuration also requires cabling between the servers and the IBM Converged Switches B32 and between the IBM Converged Switches B32 and storage system. (The cable part numbers are not listed in Table 3.)

Supported operating systems

The QLogic 10Gb CNA for IBM System x supports the following operating systems:

- Microsoft Windows Server 2003/2003 R2, Datacenter Edition
- Microsoft Windows Server 2003/2003 R2, Datacenter x64 Edition
- Microsoft Windows Server 2003/2003 R2, Enterprise Edition
- Microsoft Windows Server 2003/2003 R2, Enterprise x64 Edition
- Microsoft Windows Server 2003/2003 R2, Standard Edition
- Microsoft Windows Server 2003/2003 R2, Standard x64 Edition
- Microsoft Windows Server 2003, Web Edition
- Microsoft Windows Small Business Server 2003/2003 R2 Premium Edition
- Microsoft Windows Small Business Server 2003/2003 R2 Standard Edition
- Microsoft Windows Server 2008, Datacenter x64 Edition
- Microsoft Windows Server 2008, Datacenter x86 Edition
- Microsoft Windows Server 2008, Enterprise x64 Edition
- Microsoft Windows Server 2008, Enterprise x86 Edition
- Microsoft Windows Server 2008, Standard x64 Edition
- Microsoft Windows Server 2008, Standard x86 Edition
- Microsoft Windows Server 2008, Web x64 Edition
- Microsoft Windows Server 2008, Web x86 Edition
- Microsoft Windows Essential Business Server 2008 Premium Edition
- Microsoft Windows Essential Business Server 2008 Standard Edition
- Red Hat Enterprise Linux 5 Server Edition
- Red Hat Enterprise Linux 5 Server Edition with Xen
- Red Hat Enterprise Linux 5 Server x64 Edition
- Red Hat Enterprise Linux 5 Server with Xen x64 Edition
- SUSE LINUX Enterprise Server 11 for AMD64/EM64T
- SUSE LINUX Enterprise Server 11 for x86
- SUSE LINUX Enterprise Server 11 with Xen for AMD64/EM64T
- SUSE LINUX Enterprise Server 11 with Xen for x86
- SUSE LINUX Enterprise Server 10 for AMD64/EM64T
- SUSE LINUX Enterprise Server 10 for x86
- SUSE LINUX Enterprise Server 10 with Xen for AMD64/EM64T
- SUSE LINUX Enterprise Server 10 with Xen for x86

See IBM ServerProven at http://ibm.com/servers/eserver/serverproven/compat/us/ for the latest information about the specific versions and service packs supported.

The QLogic 10Gb CNA for IBM Power Systems (feature 5708) supports the following operating systems:

- AIX 5.3 with the 5300-11 Technology Level, or later
- AIX 6.1 with the 6100-04 Technology Level, or later
- SUSE Linux Enterprise Server 10 Service Pack 3 or later
- Red Hat Enterprise Linux 5.4 or later
- VIOS 2.1.2.0 (also for IBM i support)

Note: IBM i support is limited to Ethernet traffic only

Related publications

For more information refer to these documents:

- QLogic 10Gb CNA for IBM System x Installation and User's Guide
  http://www.ibm.com/support

- 10Gb CNAs for IBM System x product page
  http://ibm.com/systems/storage/product/systemx/cna

- IBM US Announcement Letter for the QLogic 10Gb CNA for IBM System x
  http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS109-333

- IBM US Announcement Letter for the QLogic 10Gb CNA for IBM Power Systems
  http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS109-571

- IBM System x Configuration and Options Guide
  http://www.ibm.com/support/docview.wss?uid=psg1SCOD-3ZVQ5W

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